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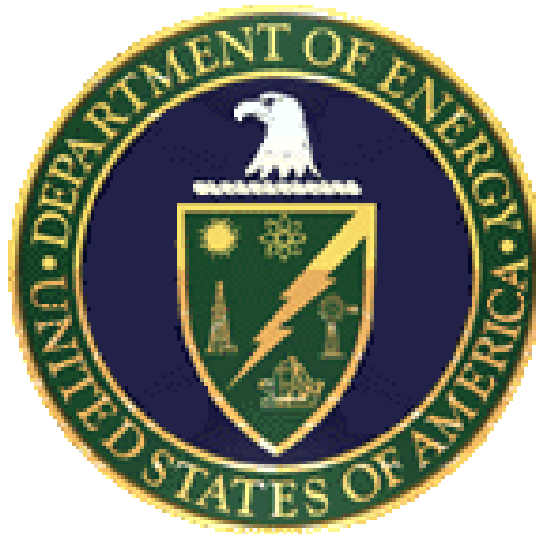
OFFICE OF ENVIRONMENT, SAFETY AND HEALTH

PHASE I ASSESSMENT OF THE

TECHNICAL QUALIFICATION PROGRAM

September 1998

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PHASE I ASSESSMENT OF THE
TECHNICAL QUALIFICATION PROGRAM

DEFENSE BOARD RECOMMENDATION 93–3 IMPLEMENTATION PLAN

EXECUTIVE SUMMARY

This report by the Office of Environment, Safety and Health (EH) documents its Phase I Assessment of the Technical Qualification Program (TQP), which is an action included in the *Revised Implementation Plan for Defense Board Recommendation 93–3, "Improving DOE Technical Capabilities in Defense Nuclear Facilities Programs."*

The EH TQP was implemented generally in accordance with DOE requirements and commitments made to the Defense Nuclear Facility Safety Board. The seven objectives addressed in the assessment were satisfied, and the TQP contributed to the overall mission of EH. Program administration, policy, and procedures and supporting information systems and databases that track technical qualification, equivalencies, exemptions, and learning activities were found to be effective. Some differences were identified in the way the TQP was implemented in affected EH offices, partially because EH established two parallel programs: one for technical personnel associated with defense nuclear facilities and the other for personnel whose work is not associated with defense nuclear facilities. Management support for the TQP also varied among EH offices.

There are differences of opinion and understanding among EH staff in several areas, including (1) purpose of the TQP, (2) level of consistency in selection criteria for enrolling participants in the TQP, (3) rigor of processes used to evaluate and grant equivalencies, and (4) confusion about whether the program is mandatory or voluntary or if it is "on hold" because of concerns raised by the National Treasury Employees Union (NTEU). Many EH staff feel that the process of reviewing and documenting technical qualifications is worthwhile but that the TQP does not greatly enhance technical capabilities. They believed that other personnel processes have been effective in hiring, selecting, placing, and training technically capable personnel in EH positions. Others raised concerns as to the availability of funding (training dollars, travel dollars) and time for TQP learning activities, as well as the relevance of available training to those competencies needed to perform their jobs effectively.

The results of document reviews, group sessions and interviews with a sampling of EH staff and managers, and a questionnaire sent to all EH staff led to several ideas on how to improve the program and shape it for the future. Analysis of these results produced a set of recommendations related to specific strengths and weaknesses. Recommendations include the need to (1) complete the remaining actions for the defense-related program, (2) consider periodic recertification and continuing training, (3) reevaluate which positions and personnel should participate in the defense-related TQP, (4) establish an EH-wide professional excellence program, (5) enable voluntary TQP participation where appropriate for employee development, (6) encourage achievement and maintenance of external certifications, (7) improve consistency in TQP implementation among offices, and (8) engage NTEU participation. These recommendations are offered for consideration by EH management to improve the TQP and other training and professional development activities throughout the office.

INTRODUCTION

The Department of Energy (DOE) *Implementation Plan for Defense Nuclear Facilities Safety Board (Board) Recommendations 93–3 and 92–7, "Improving The Technical Capability In Defense Nuclear Facilities Programs and Training and Qualification,"* was issued November 4, 1993, and accepted by the Board on November 5, 1993. Included in the DOE 93–3 Implementation Plan was the creation of a Technical Qualification Program. The TQP, required by DOE O 360.1, "Training," dated May 31, 1995, applies to DOE Federal technical employees performing activities related to the technical management, oversight, or operation of defense nuclear facilities. The DOE Order stated that participants were to complete the program by May 31, 1998.

The TQP contains three tiers of qualification standards:

- a general technical base qualification standard that includes core technical competencies applicable to all TQP participants;
- a functional area qualification standard that includes technical competencies applicable to most DOE technical positions (Participants were presented with 24 functional area qualification standards and asked to identify and participate in the one most appropriate to their duty position.); and
- a locally designed office- or facility-specific qualification standard (to supplement the Departmental technical qualification standards) applicable to a specific position and office or field location.

In implementing the DOE 93–3 Implementation Plan, the Assistant Secretary for Environment, Safety and Health (EH–1) decided that EH would implement a separate program that would satisfy the needs of the office (see Appendix G, "EH Mission and Functions") while maintaining its independence from program office activities. Although not an exact duplicate of the DOE 93–3 program, the EH program was similar to program office and field element versions of the TQP.

Office policy was established by EH–1 in a memorandum dated August 14, 1995, which stated "I expect all EH technical employees and personnel whose positions provide technical support to participate in the program." It also stated that "I believe proper implementation of the TQP and EH-wide buy-in is key to achieving technical excellence." This philosophy was carried out in policy and procedures titled "Implementation Guidance for the Technical Qualification Program," dated October 3, 1995, which were used for TQP implementation. Based on a review of the program by the Office of Human Resources, EH prepared a revised draft policy, "Technical Qualification Program Implementation Procedure," dated August 1997. The Office of Oversight also established its own "Technical Qualification Program Implementation Procedure" in September 1995 (revised May 20, 1996).

In addition, on March 4, 1997, an EH–1 memorandum titled "Senior Managers Technical Qualification Program" was sent to the Under Secretary. This established an EH review

process for senior managers, which was implemented by a memorandum dated April 1, 1997, from the EH senior management to EH–1. This was taken a step further in the "EH Handbook for Senior Technical Safety Manager [STSM] Positions" issued in October 1997.

The scope of the EH programs, however, was not limited to defense nuclear facilities. Rather, it extended beyond the scope of defense nuclear facilities because the concept of TQP was considered an important part of safety management in EH. The defense and non-defense TQP, as well as the STSM subset, continue to be implemented.

Approximately 1,800 Federal employees throughout the DOE complex participated in the TQP. Within EH, approximately 100 positions (including Senior Technical Safety Manager positions) were designated for the defense-related TQP and 150 positions were designated for the non-defense-related TQP. The Deputy Assistant Secretary for Oversight identified all Office of Oversight Federal technical positions for participation in the defense-related TQP because the incumbents conduct independent oversight of defense nuclear facilities.

In a letter to the Secretary dated April 2, 1997, the Board expressed its concern that 40 percent of the DOE 93–3 Implementation Plan commitments had not been met. In response, the Secretary recommitted the Department to improving Federal technical capabilities, and a letter to the Board dated May 5, 1998, forwarded the Revised 93–3 Implementation Plan. Several commitments in the plan were associated with the creation of a Departmental Federal Technical Capability Panel (FTCP), including designating agents from affected program offices and field elements and defining the FTCP charter.

The FTCP charter, signed by the Deputy Secretary on June 11, 1998, established membership, responsibilities, and provisions for logistics. The charter specified in part: "The Office of Environment, Safety and Health (EH) participates in all [implementation plan] activities while maintaining its independence. EH will (1) establish a panel within its own organization to oversee and resolve issues affecting the FTCP with regard to EH, (2) share information (e.g., documentation, reports) with the Panel affecting the FTCP with regard to EH, and (3) if necessary, in coordination with the Panel, seek resolution by the Deputy Secretary on any FTCP disagreements that arise and remain unresolved between the Panel and EH." Accordingly, EH–1 designated an agent to the DOE FTCP and on June 16, 1998, created an EH FTCP (EH Panel) to conduct or oversee EH activities related to the DOE Implementation Plan, including the TQP assessment.

Specifically, Commitment 5.4.2 in the revised plan called for actions to evaluate the existing TQP by conducting a Phase I Assessment. Commitment 5.4.3 calls for updating the TQP to reflect the results of the Phase I Assessment. In July 1998, the DOE Office of Training and Human Resource Development published *Technical Qualification Program Assessment Guidance and Criteria* under the authority of the FTCP. This document, which contains guidance for the Phase I Assessment, was reviewed in conjunction with EH TQP Phase I Assessment planning.

The EH TQP Phase I Assessment was directed by the EH Panel, with the addition of an NTEU representative and observation by representatives of the Office of Human Resources (HR). Assessment planning and results were discussed at length in a series of meetings of the EH Operating Group, consisting of EH–1 and Deputy Assistant Secretaries of the various EH offices. The Phase I TQP Assessment Plan was approved and issued by the Acting Assistant Secretary for Environment, Safety and Health on August 13, 1998. This report documents the results of the assessment and satisfies Commitment 5.4.2 in Appendix C of the DOE 93–3 Implementation Plan.

The report section "Scope and Methodology" describes the assessment team composition and the approach and processes that were used for the EH TQP Phase I Assessment. The "Results" section addresses the four purposes of the assessment, which include the seven objectives and additional information gathered during assessment activities. Strengths and weaknesses observed and associated recommendations for consideration by EH management also appear in this section. The "Summary of Results" restates overall status of the program. Supporting appendixes A through G contain detailed remarks on the assessment objectives and criteria, including a summary of group and individual personnel interviews (Appendix A); the results of a review of policy and procedures (Appendix B); the results of individual records review (Appendix C); an analysis of program participants (Appendix D); interview questions (Appendix E); the questionnaire sent electronically to all EH employees (Appendix F); and a statement of EH mission and functions (Appendix G).

SCOPE AND METHODOLOGY

This section describes the approach and processes that were used and the team composition for the EH TQP Phase I Assessment.

Approach and Process

The performance-based EH self-assessment used five ways to gather facts and attitudes about the program: document and records reviews, individual interviews for managers, all staff questionnaire, and several focus groups. This approach worked very well in that a good cross section of managers and staff were involved, and cross checks were possible between methods. The results of the management interviews, questionnaire, and focus groups correlated very well and provided a good basis for the team's analysis and recommendations.

Nonsupervisory TQP participants were interviewed on August 25, 1998, in three groups of 8 to 10 people, to gather information on perceived program effectiveness. Group interviews via teleconference were also conducted on August 25, 1998, with EH participants located at field sites and with employees in the Office of Environment and the Office of the Departmental Representative to the Defense Nuclear Facilities Safety Board.

Each office was represented in approximate proportion to its respective percentage of the total number of staff participating in the TQP. The assessment team leader interviewed a senior manager from the Office of Health Studies, which chose not to participate because the published qualification standards are not applicable to the work of that office. In addition, three senior managers—one from each office with the highest number of participants—were individually interviewed. The Deputy Assistant Secretary for Administration and Acting Director, Office of Technical Training and Professional Development, were also interviewed.

An officewide questionnaire invited comments from any EH employee (TQP participants and others) to ensure all had an opportunity to contribute. The questionnaire was electronically distributed to all 363 EH employees on August 19, 1998. A total of 74 questionnaire responses were returned and treated confidentially. The results were compiled and compared to the information from the interviews. The questionnaire is printed in Appendix F of this report; each question pertains to one of the seven objectives in the DOE *Technical Qualification Program Assessment Guidance and Criteria*.

Documents reviewed included DOE O 360.1, EH TQP policy and procedures; office mission and function statements; and a sampling of individual TQP records, TQP qualification standards, and individual development plans. Individual TQP records were reviewed in conjunction with the group interview sessions. Appendix C provides additional details on the records review. Personnel management documents, such as position descriptions, vacancy announcements, and employee Performance Management System elements and standards, were not reviewed because EH management confirmed that TQP considerations had not been incorporated in these documents.

TQP assessment objectives and associated criteria used are consistent with the DOE assessment guidance referenced above. Appendix A provides additional details on the assessment results associated with each objective.

Team Composition

The EH TQP Phase I Assessment Team members have expertise in various technical disciplines, including training development and administration. Since EH management encourages and acknowledges the interests of the local union, a representative of the NTEU also participated as a team member. The EH offices with the major portion of TQP participants were represented, and the Office of Training and Human Resource Development (HR–31) was invited to observe.

The team was led by Edward Blackwood, Office of Nuclear and Facility Safety, who also serves as EH FTCP chair and EH agent to the DOE FTCP. Other team members were—

- Robert Barber, EH FTCP Member, Office of Worker Health and Safety

- Jack Craig, Acting Director, Office of Technical Training and Professional Development
- Steven Petersen, Training Coordinator, Office of Oversight
- Mark Petts, NTEU Representative

The team was assisted in gathering information by individual office training points of contact.

RESULTS

The results of the assessment are intended to assist EH management in improving the EH TQP, determining the future direction of program implementation, and enhancing staff development activities as necessary. The first part of this section describes the results of the assessment for the seven TQP assessment objectives and answers the two questions below. Following that is a discussion of program strengths and weaknesses, with associated recommendations, and staff development activities, which answers two additional questions. The recommendations in this section are offered for consideration by EH management. They address potential improvements to maintain strengths and mitigate weaknesses in the TQP—and in a broader sense, the EH Training and Professional Development Program—to shape it for the future.

TQP Assessment Objectives

> Have EH TQP policy and procedures been implemented in accordance with DOE O 360.1, "Training"?
>
> Have TQP activities satisfied the principles and commitments in the revised 93–3 Implementation Plan, met the technical qualification needs of each EH member, and supported the mission requirements of EH?
>
> —EH TQP Phase I Assessment Plan

TQP–1   Demonstration of Competence: The program clearly identifies and documents the process used to demonstrate employee technical competence.

The EH-wide TQP clearly identifies and provides for documentation of the process used to demonstrate employee technical competence; however, the review and validation process for determining whether an individual met his or her assigned qualification standard competencies varied from office to office. Application of competency validation is not consistent across EH, with some offices being more rigid in their review than others. In most offices, the validation process is designed to rely on the supervisor to validate employee competence; for those offices completing the TQP, a formal review and sign-off process is followed. In the Office of Nuclear and Facility Safety, a qualified Senior Technical Safety Manager performs an independent review of participants' TQP records before equivalencies are approved and qualification is certified. The Office of Oversight

uses a formal review and sign-off process that involves designated subject matter experts. Designation of TQP participants was also inconsistent across EH, and some offices have not completed the program because of its "on-hold" status pending negotiations with the NTEU. Documentation of individual participation and progress in the EH TQP is well maintained using a combination of personal and computer records. In addition, hard-copy files of relevant and related information are centrally maintained.

TQP–2   Competency Levels: Competency requirements are clearly defined and consistent with applicable industry standards for similar occupations.

For EH positions that are closely related to the 24 Department-wide functional area standards, the competency requirements are clearly defined and generally consistent with industry standards. For the most part, EH staff and supervisors agreed that the Department-wide qualification standard competencies were consistent with the level of technical expertise representative of industry and nationally recognized certification programs. Interviews also revealed a perception that the TQP was redundant with external certification. For personnel whose job function falls outside of the 24 Department-wide standards, the competency requirements are not delineated elsewhere in the program. As a result, those staff did not participate in the EH TQP. Many EH staff are frustrated by the limited flexibility in matching the Department-wide standard to their particular function; however, this has been resolved in some cases by offices writing office- and position-specific standards to supplement Department-wide functional area qualification standards.

TQP–3   Plans and Procedures: Plans and/or procedures are developed and implemented to govern the administration of the program.

A comparison was made between the EH policy documentation and the Department's requirement found in DOE O 360.1, "Training," Chapter II, "Requirements for the Technical Qualification Program." The EH documents covered all of the elements to some degree; however, EH does not have detailed, EH-wide procedures on program implementation. This has led to problems with consistency among EH offices in areas such as exemptions, equivalencies, and subject matter experts. [Note: One EH program office—the Office of Oversight—maintains its own supplemental implementation procedure, which is very detailed and rigorous in terms of program implementation. This office-specific procedure was signed by the Deputy Assistant Secretary.] The EH TQP Implementation Procedure was revised in 1997 and includes upgrades noted during the 1996 HR review, but the procedure does not include top-level management approval signature.

Many participants had a good understanding of how their offices implemented the program, although some did not fully understand the TQP process for their offices. Most of the interview participants knew that the intended purpose of the TQP was to ensure DOE employees have the minimal technical qualifications required to do their jobs; however, most interviewees also stated that the program is a paper exercise to document qualifications that are already in place. The level of commitment to the program varies

from office to office. Some offices have implemented and effectively monitored individual progress through the program; other offices have delayed implementation, pending resolution of union issues. There are also differences among offices in the level of resources committed to the program. Some interview participants stated that there are not enough resources (time, training dollars, travel dollars) to complete the program effectively.

TQP–4   Qualification Tailored to Work Activities: The program includes the identification of unique Department and position-specific work activities and the knowledge and skills necessary to accomplish that work.

The EH TQP is generally tailored to EH work activities and the EH mission, and most participants have office- and position-specific competencies. Approximately half the questionnaire responses indicated that the qualification standards were current and somewhat appropriate for their positions. Some interviewees said that the qualification standards were too detail-oriented or too technical for the jobs they do. Most interviewed participants stated that the office-specific qualification standards were helpful in describing the jobs they perform. For the most part, program participants do not believe that the TQP has enhanced their technical expertise in job performance. They believe that they were qualified before the TQP and that they are qualified now. There were, however, some people who agreed that going through the TQP process has made them or their staff more qualified to do their jobs.

TQP–5   Credit for Existing Technical Qualification Program(s): The program is structured to allow credit, where appropriate, for other technical qualification program accomplishments.

EH TQP procedures enable satisfaction of competencies through equivalencies based on previous training, education, or experience. In addition, supervisors may grant equivalency based on their review and verification of other objective evidence, such as transcripts, course certificates, or experience. Most interview participants stated that they did receive credit for their existing technical accomplishments. Equivalencies are formally validated, approved, and documented; however, there is inconsistency among EH offices in validation and approval methods being used.

TQP–6   Transportability: Competency requirements that are identified as having Department-wide applicability are transferable.

The DOE-wide TQP is designed to allow qualification, and the related competency completion, to be transportable. The EH TQP was designed to comply with this need.

Because of unresolved union concerns, there has been no effort by EH management to integrate the EH TQP with personnel-related activities such as position descriptions, vacancy announcements, recruiting, and performance appraisals.

TQP–7   Measurability: The program contains sufficient rigor to demonstrate compliance to the principles.

Although there is inconsistency in the rigor of competency validation, the EH TQP is sufficiently rigorous to demonstrate compliance with the original program objectives. Almost all defense-related participants have completed their qualification with rigorous validations. Many staff interviewed said that training, in general, has become more available and that they received technical training that would not have been received without the EH TQP.

Strengths, Weaknesses, and Recommendations

> What are the perceived TQP strengths and weaknesses, and what actions might be considered to maintain the strengths and mitigate the weaknesses?
>
> Have EH staff development activities effectively supported the TQP?
>
> —EH TQP Phase I Assessment Plan

Strengths

- EH has generally completed 93–3 Implementation Plan commitments for defense-related TQP participants. Of 103 EH staff in the defense-related program, 91 have fully completed qualification requirements. The average completion (based on number of competencies) for the remaining 12 staff members is over 70 percent.

Recommendations

⇒ Complete the remaining actions for the defense-related program.

⇒ Consider periodic recertification and continuing training for defense-related TQP participants.

- Other programs and methods are also being used in EH to assure managers that their personnel are technically and professionally capable of performing assigned duties and tasks (e.g., Office of Personnel Management procedures for recruitment, selection, placement, and assignment of employees; EH training and development policy and practices, including individual development plans; and annual performance reviews).

Recommendation

⇒ Continue to promote technical and professional excellence through effective use of Individual Development Plans.

⇒ Explore methods to encourage achievement and maintenance of external certifications.

- The EH TQP, as developed for initial 93–3 TQP implementation, extended beyond defense nuclear facilities and engaged all technical people. Notwithstanding, some parts of the EH nondefense TQP are not appropriate to this type of qualification approach (e.g., health studies, occupational medicine, and some environmental areas).

Recommendations

⇒ Retain the EH TQP only for defense-related positions.

⇒ Establish a separate and distinct EH-wide professional excellence program that is supported by annual individual development plans.

⇒ Enable voluntary participation in the TQP by any EH employee, with supervisor's approval.

⇒ Sustain EH's commitment to professional excellence as stated in the Assistant Secretary's memorandum dated August 14, 1995, and evidenced by the TQP and the recommended professional excellence program.

- EH's automated system for recording and tracking TQP progress tied TQP requirements to individual development plans and kept an audit trail of program completion.

Recommendation

⇒ Maintain the current automated system.

- The EH Training Office took the initiative to provide competency course information to program participants.

Recommendation

⇒ Explore and promote innovative learning activities, such as technology-supported learning.

Weaknesses

- The program is not consistently implemented within EH with regard to designating participants, granting exemptions and equivalencies, and validating competency achievement.

Recommendations

⇒ Reevaluate positions to be retained in the TQP.

⇒ Revise EH procedures to promote consistency in granting exemptions and equivalencies.

- It was difficult for EH participants to complete TQP requirements because there is no direct correlation between training courses offered and the competency requirements.

> *Recommendation*
>
> ⇒ Improve the EH course catalog and training resources to present TQP-related training clearly.

- Only one office identified subject matter experts.

> *Recommendation*
>
> ⇒ Develop EH policy on use of subject matter experts for TQP competency validation.

- TQP implementation was not negotiated with the NTEU.

> *Recommendation*
>
> ⇒ Engage NTEU participation; negotiate directly or support the Office of Human Resources and Administration in continuing negotiations with the NTEU.

Summary

The Technical Qualification Program for EH was implemented generally in accordance with DOE requirements and Defense Board commitments. The seven objectives addressed in the assessment were satisfied, and the TQP contributed to the overall mission of EH. Program administration, policy, and procedures and supporting information systems and databases that track technical qualification, equivalencies, exemptions, and learning activities were found to be effective. Some differences were identified in the way the TQP was implemented in affected EH offices, partially because EH established two parallel programs: one for technical personnel associated with defense nuclear facilities and the other for personnel whose work is not associated with defense facilities. Management support for the TQP also varied among EH offices.

The results of document reviews, group sessions and interviews with a sampling of EH staff and managers, and a questionnaire sent to all EH staff led to several ideas on how to improve the program and shape it for the future. Analysis of these results produced a set of recommendations that are related to specific strengths and weaknesses earlier in this report. In summary, recommendations include the need to (1) complete the remaining actions for the defense-related program, (2) consider periodic recertification and continuing training, (3) reevaluate which positions and personnel should participate in the defense-related TQP, (4) establish an EH-wide professional excellence program, (5) enable voluntary TQP participation where appropriate for employee development, (6) encourage achievement and maintenance of external certifications, (7) improve consistency in TQP implementation among offices, and (8) engage NTEU participation. These recommendations are offered for consideration by EH management to improve the TQP and other training and professional development activities throughout the office.

This report satisfies Commitment 5.4.2 of Appendix C of the DOE Implementation Plan for Recommendation 93–3.

APPENDIX A: ASSESSMENT OBJECTIVES AND CRITERIA

Objective 1: Demonstration of Competence

The program clearly identifies and documents the process used to demonstrate employee technical competence.

Criteria

- At a minimum, personnel providing management direction or oversight that could impact the safe operation of a defense nuclear facility have been identified as participants in the TQP.
- Individual Development Plans (IDPs), training plans, technical qualification records, or other related documents are updated to reflect the activities that each individual shall participate in to satisfy competencies.
- A formal evaluation process is in place to measure the technical competency of personnel objectively. The rigor of the evaluation process is commensurate with the responsibilities of the position.

The EH-wide TQP clearly identifies and provides for documentation of the process used to demonstrate employee technical competence; however, the review and validation process for determining whether an individual met his or her assigned qualification standard competencies varied from office to office. Application of competency validation is not consistent across EH, with some offices being more rigid in their review than others. In most offices, the validation process is designed to rely on the supervisor to validate employee competence; for those offices completing the TQP, a formal review and sign-off process is followed. In the Office of Nuclear and Facility Safety, a qualified Senior Technical Safety Manager performs an independent review of participants' TQP records before equivalencies are approved and qualification is certified. The Office of Oversight uses a formal review and sign-off process that involves designated subject matter experts. Designation of TQP participants was also inconsistent across EH, and some offices have not completed the program because of its "on-hold" status pending negotiations with the NTEU. Documentation of individual participation and progress in the EH TQP is well maintained using a combination of personal and computer records. In addition, hard-copy files of relevant and related information are centrally maintained.

EH personnel participating in the EH Technical Qualification Program are generally those who could provide oversight that could affect the safe operation of defense nuclear facilities. There are some inconsistencies, however, concerning non-defense-related program participants in the areas of fire protection and electrical safety who should be in the defense-related TQP. Overall, the EH program obligated participation by "all technical personnel," and this is generally the case. There are, however, some additional personnel participating that go beyond the original intent of this program, including some nontechnical personnel and some secretaries.

It should be noted that more than half of those who completed the computer questionnaire and have an opinion about this subject did not agree that the identification of TQP

participants was appropriate. Some interview participants even thought that the selection of TQP participants was "arbitrary."

Documentation of individual participation and progress in the EH TQP is well maintained using a combination of personal and computer records. Each participant keeps a record of his or her progress in completing the TQP, including the original "Qualification Card" showing validation of competencies satisfied. Computer records are updated by each individual, such that there is a central status for each participant. At the completion of the participant's qualification (i.e., having competed all competencies for that particular "qualification"), personal records are verified against the computer records and, if appropriate, a certificate is issued. In addition, hard-copy files of relevant and related information are centrally maintained.

Although there is procedural formality to the competency evaluation and validation process, the practice across EH is somewhat inconsistent. Some EH organizations follow a formal process where competencies are validated by a subject matter expert and formal tests, whereas other organizations require only the immediate supervisor to validate competency satisfaction. This inconsistency has been of concern for some time and was reported by HR during its 1996 evaluation of the EH TQP.

Objective 2:   Competency Levels

Competency requirements are clearly defined and consistent with applicable industry standards for similar occupations.

Criteria
- Competency requirements include clearly defined knowledge, skill, and ability elements.
- Subject matter experts are involved in establishing competency requirements.
- Consideration of related professional certification requirements is included in the program as applicable.

Competency requirements are identified in the areas of—
- <u>Basic Technical Knowledge</u>, including basic fundamental knowledge of radiation protection, occupational safety, chemical safety, nuclear safety, environmental regulations, and other areas.
- <u>Technical Discipline Competency</u> (e.g., mechanical engineering, chemical engineering), which can be demonstrated by education, professional certification, examination, or on-the-job performance.
- <u>Position Knowledge, Skills, and Abilities</u> specific to the position and the office.

For EH positions that are closely related to the 24 Department-wide functional area standards, the competency requirements are clearly defined and generally consistent with industry standards. For the most part, EH staff and supervisors agreed that the Department-wide qualification standard competencies were consistent with the level of technical expertise representative of industry and nationally recognized certification programs. Interviews also revealed a perception that the TQP was redundant with external certification. For personnel whose job function falls outside of the 24 Department-wide standards, the competency requirements are not delineated elsewhere in the program. As a result, those staff did not participate in the EH TQP. Many EH staff are frustrated by the limited flexibility in matching the Department-wide standard to their particular function; however, this has been resolved in some cases by offices writing office- and position-specific standards to supplement Department-wide functional area qualification standards.

The HR-developed functional area standards are appropriate for the EH TQP, although they are not always perfect. These standards were developed by subject matter experts and typically give consideration to related professional certification requirements. A significant number of EH staff participated in the creation of these standards as subject matter experts. In some cases, a second version of the standard was developed and adopted because the Defense Board did not think the original version was appropriate or rigorous enough.

The policy requirements of the TQP, as well as the EH policy/procedure requirements, stress a three-tiered system of competencies, including a general technical base; functional discipline standards; and, where appropriate, position and office specific competencies. These requirements have been met, albeit position-specific competencies are not used for all positions.

EH staff responding to the computer questionnaire or participating in the group interviews voiced opinions that the competencies were in many cases either too specific or too fundamental to apply to their particular function. They were also concerned about the EH-wide inconsistency of application whereby some organizations allowed exemption of competencies that were not relevant, but others required that participants satisfy every competency in the standard. Finally, EH staff did not all agree with the three-tiered approach or with the inflexibility of standards application.

For example, management in the Office of Health Studies reported that the office has no managers or technical employees performing activities related to the management, oversight, or operations of nuclear facilities, and therefore, Board Recommendation 93–3 does not apply to this office. As part of the nondefense TQP, office members reviewed the general technical base and functional area standards and documented a few equivalencies where there was even a distant relationship to their job functions. They noted that the functional area standards were oriented toward facilities and technical disciplines not resident in the office. For these reasons, after the initial review and writing of equivalencies in the 1995 time frame, the office discontinued its participation in the TQP.

Staff who perform epidemiological studies, international health studies and occupational medicine activities hold advanced degrees (PhD, MD, MPH, etc.), which are the bases that demonstrate individual capabilities needed in their positions. Furthermore, the normal management functions of annual IDP review and update, planning and scheduling needed training, and management support of these efforts are deemed adequate to maintain the technical capability of Office of Health Studies staff without resorting to an additional program like TQP.

Objective 3: Plans and Procedures
Plans and/or procedures are developed and implemented to govern the administration of the program.

Criteria
- The TQP has the commitment of senior management.
- Written procedures that adequately define the processes and requirements to implement the TQP are in place.
- Roles and responsibilities for the implementation of the TQP are clearly defined and understood by all involved.
- The procedures that govern the implementation of the TQP are understood by all involved and are being implemented.
- A training and qualification records system is established for each employee in the TQP.

A comparison was made between the EH policy documentation and the Department's requirement found in DOE O 360.1, "Training," Chapter II, "Requirements for the Technical Qualification Program." The EH documents covered all of the elements to some degree; however, EH does not have detailed, EH-wide procedures on program implementation. This has led to problems with consistency among EH offices in areas such as exemptions, equivalencies, and subject matter experts. [Note: One EH program office—the Office of Oversight—maintains its own supplemental implementation procedure, which is very detailed and rigorous in terms of program implementation. This office-specific procedure was signed by the Deputy Assistant Secretary.] The EH TQP Implementation Procedure was revised in 1997 and includes upgrades noted during the 1996 HR review, but the procedure does not include top-level management approval signature.

Many participants had a good understanding of how their offices implemented the program, although some participants did not fully understand the TQP process. Most of the interview participants knew that the intended purpose of the TQP was to ensure DOE employees have the minimal technical qualifications required to do their jobs; however, most of the interviewees also stated that the program is a paper exercise to document qualifications that are already in place. The level of commitment to the program varies from office to office. Some offices have implemented and effectively monitored individual progress through the program; other offices have delayed implementation, pending resolution of union issues. There are also differences among offices in the level of resources committed to the program. Some interview participants stated that there are not enough resources (time, training dollars, travel dollars) to complete the program effectively.

Because training requests are sometimes not approved, there is a participant perception that there is little senior management commitment to the EH TQP. In addition, since there was little obvious effort by senior management to resolve the concerns of the labor organizations, a lack of commitment has been assumed. The administrators of the EH TQP have a high commitment, and report the same level of commitment from senior

management. The level of commitment varies among Deputy Assistant Secretaries and office directors.

When the EH TQP was originally implemented, each participant received a copy of the EH Implementation Procedure, and there were a number of workshops provided to explain the program. Since the workshops were offered on a voluntary basis, many EH staff did not take the opportunity to fully understand the process and requirements.

There is indication that the procedures are not well understood by the participants and managers. This situation is compounded by the understanding that the total TQP program is "on hold" due to union concerns. There is also a general confusion about whether participation in the EH TQP is "voluntary" or "required."

Results of the computer questionnaire show that more than half of those responding agreed that the roles and responsibilities are clearly defined and well understood; however, interviews with EH staff indicated that there is a lack of staff and management understanding.

Objective 4: Qualification Tailored to Work Activities

The program includes the identification of unique Department and position-specific work activities and the knowledge and skills necessary to accomplish that work.

Criteria

- An analysis has been performed to identify the related knowledge, skill, and ability elements to accomplish the duties and responsibilities for each TQP functional area or position.
- The program includes job-specific requirements related to the rules, regulations, codes, standards, and guides necessary to carry out the mission of the office.
- The program supports the mission needs of the office.

The EH TQP is generally tailored to EH work activities and the EH mission, and most participants have office- and position-specific competencies. Approximately half the questionnaire responses indicated that the qualification standards were current and somewhat appropriate for their positions. Some interviewees said that the qualification standards were too detail-oriented or too technical for the jobs they do. Most interview participants stated that the office-specific qualification standards were helpful in describing the jobs they perform. For the most part, program participants do not believe that the TQP has enhanced their technical expertise in job performance. They believe that they were qualified before the TQP and that they are qualified now. There were, however, some people who agreed that going through the TQP process has made them or their staff more qualified to do their jobs.

The EH TQP supports the mission needs of some EH programs, but it has no relevance to others. The majority of EH defense-related TQP participants are in the Office of Oversight, which uses the EH TQP for personnel certification. Some other EH programs have little or no interest in the EH TQP because the DOE-wide functional area standards have no relevance to their work and their staff are already certified by external boards.

In most instances the EH TQP includes job-specific requirements. In many instances, interview participants indicated that their competency requirements had little relevance to their job. Some EH organizations chose not to participate in the EH TQP because there was little perceived relevance to their mission and specific functional positions.

Only a few offices performed analyses to identify a "proper" list of competencies for each EH position, and in general, the DOE-wide functional area standards were used. Many EH employees expressed frustration in having to satisfy competencies that were not relevant to their position and for which they found little reason.

Objective 5: Credit for Existing Technical Qualification Program(s)

The program is structured to allow credit, where appropriate, for other technical program accomplishments.

Criteria
- Credit (equivalency) is granted for previous training, education, experience, and completion of related qualification/certification programs, where applicable.
- Equivalency is granted based on a review and verification of objective evidence such as transcripts, course certificates, test scores, or on-the-job experience.
- Equivalencies are validated, approved, and documented formally.

EH TQP procedures enable satisfaction of competencies through equivalencies based on previous training, education, or experience. In addition, supervisors may grant equivalency based on their review and verification of other objective evidence, such as transcripts, course certificates, or experience. Most interview participants stated that they did receive credit for their existing technical accomplishments. Equivalencies are formally validated, approved, and documented; however, there is inconsistency among EH offices in validation and approval methods being used.

Many EH staff expressed frustration because of the rigor imposed in validating equivalencies within their organization, noting that practices within EH are inconsistent. Some staff were required to participate in both an oral review and a written test to document equivalencies; others only had to acknowledge a college degree or other similar proof.

Objective 6: Transportability
Competency requirements that are identified as having Department-wide applicability are transferable.

Criteria
- The program includes all the competencies that have been identified as having Department-wide applicability.
- Formal documentation of the completion of Department-wide competencies is maintained in a manner that will allow for easy transferability.
- The TQP is integrated with personnel-related activities such as position descriptions, vacancy announcements, recruiting, and performance appraisals.

The DOE-wide TQP is designed to allow qualification, and the related competency completion, to be transportable. The EH TQP was designed to comply with this need.

Because of union concerns, there has been no EH intent to integrate the TQP with personnel-related activities such as position descriptions, vacancy announcements, recruiting, and performance appraisals.

Objective 7: Measurability
The program contains sufficient rigor to demonstrate compliance to the principles.

Criteria
- The technical competency of personnel who have completed the requirements of the TQP is adequate and appropriate.
- The program allows for continuous feedback and periodic evaluation to ensure that it meets the needs of the Department and the mission(s) of the office.
- The program includes provisions for continuing training.

Although there is inconsistency in the rigor of competency validation, the EH TQP is sufficiently rigorous to demonstrate compliance with the original program objectives. Almost all defense-related participants have completed their qualification with rigorous validations. Many staff interviewed said that training, in general, has become more available and that they received technical training that would not have been received without the EH TQP.

One thing that interview participants mentioned was the lack of adequate training opportunities. Some of the technical competencies are highly specialized, and there are few, if any, structured courses available.

The technical competency of EH personnel in the EH TQP is adequate and appropriate. Because of the high educational level and the high experience level of EH technical staff, many of the competencies were met by "equivalency."

The EH procedure, as written, does not call for continuous feedback and periodic evaluation; as a result there has been little feedback on its strengths and weaknesses.

Except for one functional standard, which requires periodic requalification, there are no provisions in the EH TQP for continuing training.

APPENDIX B: POLICY AND PROCEDURES

Are plans and procedures developed and implemented to govern the administration of the program?

EH has taken steps to ensure that the TQP is properly supported and carried out. A major commitment was made by EH–1 in the memorandum dated August 14, 1995, which stated that "I expect all EH technical employees and personnel whose positions provide technical support to participate in the program." It also stated that "I believe proper implementation of the TQP and EH-wide buy-in is key to achieving technical excellence." This philosophy was carried out in an EH Technical Qualification Program Implementation Procedure; the latest draft version is dated August 1997. In addition, on March 4, 1997, an EH–1 memorandum was sent to the Under Secretary entitled "Senior Managers Technical Qualification Program." This established an EH review process for senior managers that was implemented by a memorandum dated April 1, 1997, from EH senior management to EH–1. This memorandum established criteria, made selections, and qualified 18 EH senior managers for the Technical Qualification Program. This was taken a step further in the *EH Handbook for Senior Technical Safety Manager Positions*, issued in October 1997. The handbook is comprehensive and covers the range of roles and responsibilities in the qualification process for the Senior Technical Safety Manager position. Lastly, the Deputy Assistant Secretary for Oversight established a "Technical Qualification Program Implementation Procedure," in September 1995 (revised May 20, 1996), that provides a detailed process for the selection, qualification records, validity, check of competency statements, implementation schedule, and roles and responsibilities for the Office of Oversight TQP.

A comparison was made between the EH Policy documentation noted above and the requirements found in DOE O 360.1, Chapter II, "Training, Requirements for the Technical Qualification Program." The following elements are covered by EH policy:

- Applicability
- References and Definitions
- Responsibilities
- General Requirements
- Procedure
  - selecting employees
  - developing TQP records
  - executing and completing TQP requirements
  - evaluating and documenting employee achievement of qualification competencies
  - training with a written examination
  - learning activities with oral or written evaluations
  - learning activities verified by performance, simulation, or product review
  - achieving qualification status
- Records

The "Responsibilities" section discusses the need to identify and develop necessary functional and office-/position-specific qualification standards. The "General Requirements" and "Procedure" sections describe implementation of the program in detail. There are provisions for program evaluations by the Office of Technical Training and Professional Development, and "General Requirements" covers reciprocity; however, the policy does not include the relationship to other personnel activities such as vacancy announcements, position descriptions, and rating factors.

APPENDIX C: RECORDS REVIEW

TQP training and qualification records control was maintained on individual paper copies and by a centralized electronic database system.

All TQP records are generated on the System Management for Annual Requested Training (SMART) database. This provides a standard and consistent training record system for listing TQP participants and their assigned qualification standards and for monitoring qualification exemptions, equivalencies, and needed developmental activities for successful completion of the TQP. This program also allows participants electronic access to their TQP records. This is a well-managed program that provides effective and timely reporting of individual and organizational TQP progress to EH management.

There was a large volume of signature sheets and required forms; however, TQP participants placed them in their individual notebooks, which they then maintained. A review of the TQP notebooks revealed some problems with the lack of individual signatures verifying successful completion and evaluation of TQP competencies.

The SMART Program also allows direct input of TQP competencies to IDPs. This ensures that all outstanding TQP competencies are addressed in the IDP and are rolled up for overall EH management of training program needs.

APPENDIX D: PARTICIPANTS

As part of the Phase I assessment, enrollment records were reviewed to determine if candidate selection was appropriate to address the concerns of the Defense Board and if selection criteria were consistent in EH. What follows is a summary of the findings.

TQP (Defense-related)

A review of the candidates in the defense-related TQP program shows that all Oversight TQP participants are enrolled in this program. Based on the definition of TQP participants in DOE O 360.1, it was decided that senior Oversight management occupying SES positions and office directors and deputies would not initially participate. Most of the senior managers did participate in the subsequent Senior Technical Safety Manager Program.

There are candidates in the Offices of Nuclear and Facility Safety and Worker Health and Safety enrolled in the defense-related TQP as well, many of whom have completed the program. A review of the records identifies only one issue with appropriateness of enrollments. The Offices of Nuclear and Facility Safety and Worker Health and Safety were not consistent with the Office of Oversight in designations for staff involved in fire protection and electrical safety; however, all Nuclear and Facility Safety and Worker Health and Safety staff members participated in the non-defense-related, including those with expertise in fire protection and electrical safety.

TQP (Non-defense-related)

A review of the records shows that most organizations in EH have enrolled at least some employees in the non-defense TQP program. There were some inconsistencies in the selection criteria for this program, as shown by the following examples.

In the Office of Nuclear and Facility Safety, most staff are enrolled; however, it was noted that one Safety Engineer (series 803) is not enrolled, and one Computer Systems Analyst (series 334) is enrolled.

In the Office of Worker Health and Safety, there are positions in some categories that do not need to be enrolled in this program. In particular, program analysts (series 343) and training specialists (series 1712) most likely do not need to participate other than on a voluntary basis. Several other positions may not be of interest to the Defense Board, including Aviation Information Specialist (series 2101), Aviation Safety Inspector (series 1825), Aviation Safety Program Officer (series 1801), and Engineering Psychologist (series 180).

APPENDIX E: INTERVIEW QUESTIONS FOR STAFF AND MANAGEMENT

The following questions were used as the basis for discussion during the group interviews on August 25th and senior management interviews on August 26th.

General
Do you understand the Technical Qualification Program?
    Is/Was it effective?
    Is/Was it beneficial to you?

TQP–1, *Criterion 1*
Was the identification of participants for the TQP appropriate?

TQP–1, *Criterion 3;* TQP–5, *Criteria 1–3*
Discuss/Evaluate validation of competencies and equivalencies?
    Describe the process for both competencies and equivalencies?
    Formal and rigorous?
    Fair and consistent?
    Any changes necessary or proposed?

TQP–2, *Criteria 1 & 3*; TQP–4, *Criteria 1–2*
Discuss competency requirements within TQP Standards applicable to you?
    Are they clear and understood?
    Are they applicable to your job and position description?
    Are they consistent with state-of-the-art industry standards?

TQP–3, *Criterion 1*
Did senior management support the Technical Qualification Program?
    Was sufficient time allotted for you to complete the program?
    Were sufficient resources made available?
    Was your progress monitored/discussed with you by your management?
    Was assistance and guidance provided to you? From whom?

TQP–4, *Criteria 1 & 3*
Did the TQP support your needs and the needs of your organization?
    Professional development needs?
    Office mission needs?

General
What is the best way to maintain your TQP qualifications in the future?
Where do we go from here to maintain EH technical expertise? [e.g., establish a qualification point
    system similar to nationally recognized certification programs (i.e., CSP, CIH); update the
    current TQP standards and requalify; other methods you can devise?]

APPENDIX F: E-MAIL QUESTIONNAIRE

The first ten questions were to be answered with one of the following choices:

1 - strongly agree	4 - disagree
2 - agree	5 - strongly disagree
3 - somewhat agree	6 - no opinion

Question	Related TQP Objective
The TQP is effective and beneficial in maintaining your technical capabilities.	TQP–1
The TQP competency requirements are appropriate to your position.	TQP–4
The TQP contributes to the overall mission of EH.	TQP–4
Support from office training points of contact, supervisors, and management is helpful in identifying and completing learning activities.	TQP–7
The identification of TQP participants was appropriate.	TQP–1
The equivalency/exemption approval process is fair and consistent.	TQP–5
Your roles and responsibilities in the qualification process are clearly defined and understood.	TQP–3
EH Training Office support and access to technical training materials are useful.	TQP–7
The TQP competencies at DOE are equivalent in rigor to those outside the Federal government.	TQP–2
IF YOU ARE A SUPERVISOR OR MANAGER, you know the completion status of each TQP or STSM participant within your organization.	TQP–7

The questionnaire also allowed employees to make additional free-form comments, with the following questions:

1. Do you agree with the concept of a technical qualification program?

2. Why would you want (or not want) to be involved in the program?

3. What aspects of a revised TQP would help you?

4. What ideas do you have for maintaining your qualifications?

APPENDIX G: EH MISSION AND FUNCTIONS

The Office of Environment, Safety and Health is the Departmental advocate for excellence in programs to protect the environment, as well as the health and safety of workers at Department of Energy facilities and the public. The Office's central role as a Department-wide resource has been developed with the participation of a wide range of Stakeholders and reflects the Office's statutory and regulatory mandates. This commitment to excellence in environment, safety, and health is demonstrated by striving for—

- continuous improvement in developing effective programs and policies;
- strong and independent oversight of environment, safety, health, safeguards, and security performance; and
- effective and "value-added" technical assistance provided to customers.

Open communication, participation, and performance feedback on the Office's activities from relevant parties are integral to its success.

The Assistant Secretary for Environment, Safety and Health serves as the principal advisor to the Secretary of Energy on matters relating to protection of the environment, workers, and the public from hazards posed by Department of Energy facilities and operations. In accordance with the Secretary's commitment to openness, the Office's functions are to—

- ensure conformance of the Department's activities with applicable laws and requirements governing protection of the environment, as well as the safety and health of the public and the workers at Department of Energy facilities;
- conduct scientific and technical programs to enhance the Department's ability to protect the health and safety of workers and the public;
- maintain a diverse, well-trained, and motivated work force empowered to participate fully in the Office's missions; and
- ensure the adequacy of training programs aimed at providing Department of Energy and contractor employees with adequate understanding of work-related hazards and their responsibilities to protect themselves, the public, and the environment.

Specific functions of the Office of Environment, Safety and Health that serve its principal customers include—

- development and establishment of environmental, occupational safety and health, and medical policies and rules for operation of Departmental facilities that are effective, efficient, and state-of-the-art.
- conduct of independent oversight activities that provide a comprehensive, accurate understanding of the state of environment, safety, health, safeguards, and security performance at Department of Energy facilities and that identify programmatic vulnerabilities and opportunities for improvement in a timely manner.
- provision of technical assistance to the Department's programs to foster the identification and resolution of environment, safety, health, safeguards, and security issues.

Examples of such activities include—

- mentoring;
- partnering with line programs to develop and implement new programs;
- assisting programs in implementation of a standards-based safety culture;
- maintenance of an effective health surveillance system that includes data gathering and analysis; and
- liaison with other Federal agencies such as the EPA and OSHA to identify and advocate regulatory activities of those agencies that may affect Departmental operations.